



Women employment in agricultural sector: Effects on livelihoods

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ABSTRACT

Women in Bangladesh are involved with agriculture in planting, harvesting and post-harvest processing. Present study investigated the socio-economic, hygienic and maternal health of the women working in agricultural sector (employee) and women who are involved in other works (non-employee) in the same community to evaluate impacts of agriculture on women life style. Data was collected from Chittagong, Dinajpur and Mymensingh district using questionnaire survey. The survey results revealed that medium household size (61.9% and 57.8%), primary education (51.4% and 49.1%), married (93.6% and 91.4%) was dominant among employee and non-employee women, respectively. Average monthly household income and expenditure of the employees were Tk. 11532 and Tk. 8926, respectively while in non-employee women were Tk. 9686 and Tk. 7848, respectively. Most of the employee and non-employee women had facilities for drinking tube-well water (91.9% and 81.5%) and use polli electricity (69.9% and 68.2%) in the areas. This indicates that higher income from agriculture has a positive impact on life style of employee women. Clean house, hand washing, garbage disposal and ingredients wash before cooking constituted highest percentage of the respondents in both cases. Current study revealed that health check during pregnancy, T.T. coverage and normal delivery process was good among the employee women. Body Mass Index (BMI) results revealed that 68.2% employee women was under normal weight while 42.8% non-employee women was underweight. Besides, obesity rate was significantly higher among the non-employee women (25.4%) which is only 2.9% among the employee community. The study observed and suggesting that employee women in agriculture have better life style, more income, hygiene practice, good maternal health and better nutritional status than the non-employee women in the same community.

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Introduction

Women's empowerment in agriculture is considered as a determinant of food and nutrition security is rooted in a body of empirical evidence. It demonstrates the ways in which women are essential to improvements in household agricultural productivity, food security, and nutrition security. Women have played and continue to play a vital role in every sphere of agricultural activity in Bangladesh. Besides, there is a no doubt that women are an essential part in the household and farm activities due to their positive role but their contributions are rarely considered and valued (Rahman *et al.*, 2016). An economically viable and ecologically sustainable agriculture, the involvement of women in the process of modernization of farming practices is a must (Satyavathi *et al.*, 2010). Combined efforts of men and women farmers may

increase the final production and improve the life style of the household.

Bangladesh is an agricultural country where sufficient rice production essential for the better livelihood (Kabir *et al.*, 2015). The agriculture sector of the country involves food production for 163.65 million people from merely 8.75 million hectares of agricultural land (Salam *et al.*, 2014). The Government's recent agricultural policy emphasize on increasing food supplies for the bulging population as well as providing income generative sources for rural people (Salehin *et al.*, 2009). According to BBS (2017) about 11210000 women are involved in the agricultural sector and they constitute 45% of the total labor force in the agriculture sector of the country. Most of the rural women have little opportunity to participate in intra-household, socio-economic and political decision-making processes as well as very limited

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interaction with people outside of the home (MoWCA, 2011). However, involvement of women in agriculture is an urgent need to increase production efficiency. Study and evaluation of socioeconomic aspects, life style and sanitary conditions of the women working in agriculture are necessary because these factors have significant impact on crop yield and productivity (Hoque and Haque, 2014). Unfortunately, very few studies have been found studying the lifestyle and contribution of women workers in agriculture. Besides, impact of agriculture on rural women livelihood and nutritional status have not been studied yet. Core contribution of rural women in rice production in Bangladesh was reported by Rahman *et al.* (2016). Therefore, current study is planned to investigate the socioeconomic, hygiene practice and maternal knowledge among the women involved in agriculture (employee) and women are not involved in agriculture (non-employee).

Materials and Methods

Population and sampling

The survey was conducted among the women working in agriculture from Chittagong, Dinajpur and Mymensingh. The study surveyed a total of 346 employee women and 173 non-employee women from three districts to collect primary data (Table 1). Random selection of the respondents from total population and semi-structured questionnaire survey was conducted.

Table 1. Employee and non-employee women respondents from sampling areas

Sampling area	Employee	Non-employee
Chittagong	125	65
Dinajpur	135	66
Mymensingh	86	42
Total	N= 346	N= 173

Body Mass Index (BMI) calculation

Respondent's body weight was measured in weighing machine and height in standard scale with bare foot. BMI of the respondents was calculated from the body weight in kg and height in meter square (m²) by using the following formula:

$$\text{BMI} = \text{Wt. of the respondent (kg)} / [\text{Height of the respondent (m)}]^2$$

Based on the BMI the respondents were categorized into four groups: underweight (<17.5), normal weight (17.5-22.99), over weight (23.0-27.99) and Obese (>28.0).

Statistical analyses

Raw data, collected from the field, were processed by removing illegal codes, reducing logical inconsistencies, dropping improbabilities and by solving ambiguities.

Survey data were tabulated and analyzed using MS Excel sheet v.2010.

Results and Discussion

Socio-demographic status

Present study investigated socio-demographic status of the employee and non-employee women in agricultural sector in the studied areas (Table 2). The study found that highest 36.4% of the employees were 25-34 years old whereas 41.6% of the non-employee women were ≥ 45 years old. In our study, highest percentage of the respondents in both community completed primary study 51.4% and 49.1%, respectively. Between the employee and non-employee women, average income of the employee women was higher at respondent and household level. Expenditure on different items including food was also higher among the employees. In the present study medium household size, married women and muslim women had highest proportion among the employee and non-employee women, respectively. Compare to the non-employee women, employee women had better socio economic condition in the study.

Salehin *et al.* (2009) found that 54% of the farmers are middle age (36-50) and highest 28% completed their primary education. Substantial portion of the women finished their study at primary level because people think women don't need to study more (Rahman *et al.*, 2016). Highest proportion of the farmers found old aged (47.9%) and 65.4% was literate from primary to above secondary by Hoque and Haque (2014). It is expected that education is must to improve in all spheres of activities including agriculture since education level has significant impact on raising farming efficiency and boosting potential output (Ali and Finn, 1989; Seyoum *et al.*, 1998). One year household-head's education increased rice production by 4 percent (Asadullah and Rahman, 2005). Researchers also reported insignificant effect of education on agricultural production efficiency in Bangladesh due to the education system (Wadud and White, 2000; Rahman, 2004). The earning of the employee and non-employee women was lower than the national average of Tk. 13258 (BBS, 2017). Salehin *et al.* (2009) reported that 40% of the farmers were having low income and 43% having medium income while Hoque and Haque (2014) found 47.4% farmers having medium income and 38.4% having high income.

Salehin *et al.* (2009) revealed that maximum 41% family is medium sized similar to this study among employee and non-employee women 61.9% and 57.8%, respectively. Hoque and Haque (2014) and Rahman *et al.* (2016) found medium family with highest proportion 38.9% and 65%, respectively. In the study, substantial portion of the employee and non-employee women was married and involved in household works including agriculture and other income generating sources.

Table 2. Socio-demography of women employed in agriculture sector

Variable	Employee, n (%)	Non-employee, n (%)	Significance value
<i>Age</i>			
15-24	72 (20.8)	5 (2.9)	p=0.0
25-34	126 (36.4)	32 (18.5)	
35-44	114 (32.9)	64 (37.0)	
≥ 45	34 (9.8)	72 (41.6)	
<i>Education</i>			
Illiterate	81 (23.4)	48 (22.7)	p=0.75
Primary	178 (51.4)	85 (49.1)	
Secondary	85 (24.6)	39 (22.5)	
Higher secondary	2 (0.6)	1 (0.6)	
<i>Marital status</i>			
Married	324 (93.6)	158 (91.4)	p=0.75
Widow	12 (3.5)	9 (5.2)	
Left/separated	6 (1.7)	3 (1.7)	
Divorced	4 (1.2)	3 (1.7)	
<i>Religion</i>			
Muslim	244 (70.5)	115 (66.5)	p=0.46
Hindu	70 (20.2)	39 (22.5)	
Buddhist	28 (8.1)	14 (8.1)	
Christian	4 (1.2)	5 (2.9)	
<i>Household size</i>			
Small (2-3)	80 (23.1)	44 (25.4)	p=0.67
Medium (4-5)	214 (61.9)	100 (57.8)	
Large (≥ 6)	52 (15)	29 (16.8)	
<i>Income</i>			
Respondents monthly income	3053	2975	p=0.62
Monthly average household income	11532	9686	p=0.00
Per capita income	2800	2479	p=0.03
<i>Expenditure</i>			
Monthly household expenditure (average)	8926	7848	p=0.00
Per capita expenditure	2162	2006	p=0.76

Table 3. Housing, drinking water, and lighting facilities of women employed in agriculture sector

Variable	Employee, n (%)	Non-employee, n (%)	Significance value
<i>Ownership of residence</i>			
Own	270 (78.0)	104 (60.1)	p=0.000
Rented house	43 (12.4)	36 (20.8)	
Others	33 (9.5)	33 (19.1)	
<i>Materials in house</i>			
Wood	4 (1.2)	17 (9.8)	p=0.000
Concrete	86 (24.8)	22 (12.7)	
Clay	256 (74.0)	134 (77.5)	
<i>Drinking water source</i>			
Tube-well	316 (91.9)	141 (81.5)	p=0.001
Tap water	18 (5.2)	26 (15.0)	
Others	10 (2.9)	6 (3.5)	
<i>Ownership drinking water</i>			
Own	185 (53.3)	70 (40.5)	p=0.009
Govt, NGO, others	161 (46.5)	103 (59.5)	
<i>House lighting</i>			
Yes	298 (86.1)	133 (76.9)	p=0.006
No	48 (13.9)	40 (23.1)	
<i>Lighting facility</i>			
Polli electricity	242 (69.9)	118 (68.3)	p=0.089
Kerosene lamp	90 (26.1)	40 (23.0)	
others	14 (4.0)	15 (8.7)	

Livelihood of agricultural women

Table 4. Hygiene, sanitation and cooking facilities of women employed in agriculture sector

Variable	Employee, n (%)	Non-employee, n (%)	Significance value
<i>Clean house inside</i>			
Clean	272 (78.6)	136 (78.6)	p=0.747
Partly clean	62 (17.9)	33 (19.1)	
Dirty	12 (3.5)	4 (2.3)	
<i>Ownership of latrine</i>			
Personal /own	229 (66.2)	84 (48.6)	p=0.00
Government /NGO	18 (5.2)	11 (6.4)	
Others /share with others	99 (28.6)	78 (45.0)	
<i>Separate toilet</i>			
Yes	129 (37.3)	60 (34.7)	p=0.315
No	217 (62.7)	113 (65.3)	
<i>Separate kitchen</i>			
Yes	223 (64.5)	81 (46.8)	p=0.00
No	123 (35.5)	92 (53.2)	
<i>Ingredients wash during cooking</i>			
Small pieces and wash by water	178 (51.4)	80 (46.2)	p=0.544
Whole piece of cut	97 (28.0)	55 (31.8)	
Others	71 (20.5)	38 (22.0)	
<i>Garbage disposal</i>			
Specific dish/ space	223 (64.5)	90 (52.1)	p=0.030
Open space	111 (32.1)	76 (43.9)	
Here and there	12 (3.5)	7 (4.0)	

Table 5. Maternal health and nutritional status of women employed in agriculture sector

Variable	Employee, n (%)	Non-employee, n (%)	Significance
<i>Heath check during pregnancy</i>	188 (57.3)	471 (45.2)	p=0.008
<i>Tetanus vaccine coverage</i>			
Full dose	141 (43.0)	60 (38.2)	p=0.318
Incomplete dose	187 (57.0)	97 (61.08)	
<i>Delivery process</i>			
Normal	300 (94.0)	134 (87.6)	p=0.04
Cesarean	13 (4.1)	15 (9.8)	
Midwife	6 (1.9)	4 (2.6)	
<i>Birth difficulties</i>	37 (11.3)	24 (15.3)	p=0.136
<i>Breast feeding</i>	315(91.0)	151(87.3)	p=0.272
<i>Colostrums feeding (practice)</i>	304(87.9)	145(83.8)	p=0.156
<i>Liquid feeding after 3 days</i>	106(30.6)	45(26.0)	p=0.261
<i>Vitamin A capsule less than 5 y</i>	136(41.5)	60(38.2)	p=0.495
<i>Vitamin A capsule within 24 h</i>	141(43.0)	65(41.4)	p=0.741
<i>Body mass index</i>			
Underweight (<17.5)	42(12.1)	74(42.8)	p=0.000
Normal (17.5-22.99)	236(68.2)	34(19.7)	
Over weight (23.0-27.99)	58(16.8)	21(12.0)	
Obese (> 28.0)	10(2.9)	44(25.4)	

Housing condition, drinking water source and lighting facilities of the respondents

Present study found that 78.0 % employee women had own house while only 60.1 % non-employee live in their own house. Similarly, drinking water source and lighting facility was higher among the employee women than non-employee women (Table 3). This indicates that higher income from agriculture has a positive impact on life style of employee women.

Hygienic status

Hygienic status of the employee and non-employee women are presented in (Table 4) In the present study, highest proportion of house of the employee and non-employee women was clean and coincided (78.6%). In cooking, 64.5% of the employee and 46.8% of the non-employee women use separate kitchen. Percentage of ingredients wash during cooking, garbage disposal, hand washing before eating and hand washing were better among employee than non-employee women.

Maternal health and nutritional status of the women

Current study revealed that health check during pregnancy, T.T. coverage and normal delivery process was more among the employee women (Table 5). Birth difficulties was also less among the employee than non-employee women. The percentage of breast feeding practice was also higher within the employee. A birth difficulty was reported less among the employee women (11.3%) than non-employee women (15.3%). The nutritional status of the employee women (BMI index) revealed that 68.2% employee women was under normal weight while 42.8% non-employee women was underweight indicating that nutritional deficiency is higher among the non-employee community. Besides, obesity (BMI >28.0) rate was significantly higher among the non-employee women (25.4%) which is only 2.9% among the employee community.

Conclusion

In Bangladesh once women used to take care of husband and children and they were bound within the home. This research showed that women involved in agriculture have better life style than non-employee women. However, our study is suggesting immediate initiatives, for example, training, free education, business literacy school (BLS), etc. for enhancing education among the employee women and non-employee women for the betterment of the production efficiency and development of the country. Our study suggesting that agricultural work has the potential of increasing women and household income and creating employment. The study recommends a number of initiatives from government and non-government level, such as, provide education, training, financial support and quality seeds those would benefit the women farmers in the rural Bangladesh.

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